

Activity Number	Action	2004	2005	2006	2007	Outcome	How progress will be measured and/or monitored	Milestones and anticipated completion dates if applicable
Actions to Improve SBRMs for the BSAI and GOA Groundfish Fisheries, the Alaska Pacific Halibut fishery, and the State Managed MMPA Category II Salmon Fisheries								
1	Develop improved protocols for observer documentation of seabird interactions and mortalities.	Implemented changes to data recording to enable better estimation procedures.	We are developing several special data collections for implementation in 06.	Finalize improvements to statistical analysis of seabird bycatch.	Will respond to needs identified by scientists and managers. Several special data collection projects are being planned.	Improved accuracy and precision in estimates of seabird interactions and bycatch.	Agreed upon special data collections will be implemented January 1st of each fishing year.	Annually on January 1.
2	Improved species identification by observers.	Improved training in response to specific needs identified by scientists and managers.	One new species was identified and added to our data collections in response to end user needs.	Will responds to identified needs.	Will responds to identified needs.	Improved accuracy in identification of catch and bycatch species and quantification of removals. Improved bycatch estimates through comparison of catch and estimated retention.	Agreed upon requests are incorporated into our manual and training sessions for each fishing year.	Annually.
3	Develop and implement methods for shoreside sampling of skates.	Contracted with Alaska Department of Fish and Game to perform sampling.	Work was not completed due to lack of funds.	Continued work depending on funding.	Continued work depending on funding.	Understanding of magnitude and composition of skate fishery on currently unobserved vessels. Ability to compare removals with deliveries if fishery is observed.	No planned work due to finding constrains.	N/A
4	Enhancements to observer sampling for catch composition determination.	Ongoing methodology research.	Fieldwork was completed in Gulf of Alaska in the summer of 05	Analysis of field data will be completed dependent on funding.	No efforts are currently planned.	Improved accuracy and precision in estimates of total removals by species. Improved bycatch estimates through comparison of catch and estimated retention.	Analysis completed by September 30th, 2006	Analysis completed by September 30th, 2006
5	Evaluate placement of observers on small (<60ft) groundfish vessels.	Subject to funding and authorization by Council.	The issue was addressed in a draft analysis developed for Council action in 06	Subject to funding and authorization by Council.	Subject to funding and authorization by Council.	Basis for evaluating costs and benefits associated with direct observation of bycatch on small groundfish vessels. Potential for improved bycatch estimates.	Council action tentatively scheduled in June of 2006.	Council action tentatively scheduled in June of 2006.
6	Certify observer workstations and monitor flow scale testing on certain vessels fishing groundfish.	This is an ongoing funded activity.	This is an ongoing funded activity.	Ongoing	Ongoing	Improved accuracy in estimating total catch and catch composition.	All workstations are certified annually. Scales are tested each day as needed.	Annually
7	Place observer program staff on specific groundfish vessels to customize sampling protocols	This is an ongoing funded activity.	Staff participated in cruises on three different vessels	Ongoing	Ongoing	Improved sampling precision and reduction in bias. Improvements in vessel-specific and overall estimates of catch and bycatch.	Each cruise is evaluated and protocols are reviewed and revised, if needed, by the end of the FY.	Annually
8	Evaluate technologies suitable for monitoring groundfish fisheries.	Evaluating available technologies in consultation with other observer programs. A contract with Marine Resources Assessment Group reviewing current technologies was completed.	The use of video technology was included as a component of Gulf of Alaska work noted in item 7 above. Additional video work was planned on a catcher processor vessel for 06 implementation	Field work is planned on a catcher processor in 06.	Analysis of field data will be completed dependent on funding.	Basis for determining best mix of technological and human resources to address specific monitoring needs. Potential for improved bycatch estimates.	Analysis completed by September 30th, 2007	Analysis completed by September 30th, 2007
9	Develop approaches for optimizing observer deployment and tasking	Engaged in ongoing consultation with scientists and managers.	Engaged in ongoing consultation with scientists and managers.	Ongoing	Ongoing	Improved efficiency in allocation of observer resources. Flexibility in assigning observers based on priorities, logistics, and costs.	Changes in observer resource allocation agreed and implemented in training for the January 1 start of each fishing year.	Annually

10	Evaluate potential for placing observers on commercial halibut vessels.	Funds were not provided in FY04.	Funds were not provided in FY05.	Dependent on provision of funds.	Dependent on provision of funds.	Basis for evaluating costs and benefits associated with direct observation of bycatch on halibut vessels.	No milestones established due to lack of funds.	N/A
11	Change observer service delivery model to improve flexibility and data quality.	Developing Alternatives for Council consideration.	Developed a draft analysis to support Council action.	Completion of the Council analysis. Further work will be dependent on Council action.	Dependent on Council Action.	Improved efficiency in allocation of observer resources. Flexibility in assigning observers based on priorities, logistics, and costs.	1. Completion of analysis and Council initial review - Feb 2006, and 2. Council final action - June 2006.	1. Completion of analysis and Council initial review - Feb 2006, and 2. Council final action - June 2006.
12	Revise standard observer data collection protocols to implement new requirements.	N/A	Developed the specifications to collect new information for end users and to collect more detailed information on each sampled haul.	Developing and installing the computer applications on site and on fishing vessels to allow the revised protocols.	Implement the requested changes at the start of the fishing year.	Improved data collections responsive to end user needs, and enabling the assessment of within haul variability.	New collection requests submitted by November 15, 2005. New collections implemented January 1 of the 07 fishing year.	Annually. New collection requests submitted by November 15, 2005. New collections implemented January 1 of the 07 fishing year.
13	Investigate the impact of a real-time bycatch monitoring system on bycatch levels and fishing location choice in the BSAI.	Working with Karl Haflinger to obtain access to real-time reports he's issued.	Continue paper with Kurt Schnier and Rob Hicks.	Continue studies of swimming behavior in response to temperature.	No Actions Planned.	Evaluate the extent to which alternative bycatch management strategies affect bycatch rates and fishing strategies.		
14	Improve methodology for estimating prohibited species bycatch.	Issue contract with Jim Sanchirico at Resource for the Future to begin work.	Project has been funded and contract is in place. Some preliminary work has been conducted, and the bulk of the work will be completed this winter.	Finalize paper, prepare report, and make recommendations	No Actions Planned.	Increased precision in estimating overall prohibited species amounts or rates, by statistical area, gear type, and mode of operation.		
15	Develop indicators of fish condition for prediction of discard and escapee mortality.	N/A	Ongoing project for FY 05-07. Initial laboratory work has indicated behavior and injury can be used to predict discard and escapee mortality.	Continue studies on condition measures for mortality that may be used in the field.	Continue studies on condition measures for mortality. Begin preliminary field studies for use of condition measures to predict discard and escapee mortality.	The development of new, sensitive behavioral measures of delayed mortality in discards from fisheries will improve the SBRMs and the resulting estimates of bycatch mortality and could be used to improve discard procedures.	Completion of experiments and production of peer-reviewed articles in scientific journals. This research will improve SBRMs for the BSAI and GOA groundfish fisheries and the Alaska Pacific halibut fishery.	(a) Studies completed and papers submitted for publication. 9/1/2006. (b) Studies completed and papers submitted for publication. 9/7/2007.
16	Evaluate the need for additional compliance resources to maintain the integrity of the observer data.	AED is evaluating certain technologies to assist in observer related enforcement activities and continues to work closely with the observer program to address bycatch related compliance issues.	Ongoing	Ongoing	Ongoing	Decreased occurrences of interference with observer sampling or reporting by crew and stricter adherence to performance requirements by observers.	AED will continue to work with observer program staff to provide support for observer interference activities on a case by case basis. AED will continue to work with SF and observer program staff on alternative monitoring technologies.	AED will participate in technical working groups as needed.

1	Stock assessment research for non-target groundfish species.	Estimated catch to more precise taxonomic levels using groundfish observer data for 1997-2002. One masters and one PhD thesis initiated on skate life history. Initiated biological collections for skates, sculpins, and other nontarget species during surveys. Incorporated IPHC survey data into GOA skate stock assessment.	Several species of skates from the GOA are being aged. New assessments were conducted for skates, sculpins, octopi, and sharks.	Cindy Tribusio is writing a thesis on BSAI Alaska skate reproductive biology that should be finished in summer 06. New assessments may be conducted, conditional on funding issues and observer program resource limitations.	New assessments may be conducted, conditional on funding and priorities.	Improve the quality of catch, life history, abundance and assessment information on species where stock status is poorly defined or unknown.		
2	Ecosystem research on the effects of bycatch.	Developed a fishery management system that accounts for the impact on habitat using a cap and trade system.	Project is completed. A report containing three manuscripts has been prepared and submitted for publication in peer-reviewed journals.	Ongoing depending on continued funding of contract employees and student research.	Ongoing depending on continued funding of contract employees and student research.	Extending rights-based fishery management to include habitat impacts as a separable property right appears to be an efficient and effective means of achieving habitat protection and can achieve habitat protection objectives similar to MPAs, but with greater flexibility in achieving the targets for protected habitat and species at a lower cost.		
3	Economic and social science data collection and research.	Alan Haynie is obtaining additional data on real-time bycatch reports to evaluate the effects of such a system.	Continue paper with Kurt Schnier and Rob Hicks.	Paper with Kurt Schnier and Rob Hicks to be completed. Work will be presented at professional conferences and at the AFSC.	Ongoing depending on continued funding of contract employees and student research.	Improved ability to determine the social and economic impacts of bycatch and bycatch management measures and to model fishing behavior.		

4	Using flatfish behavior to reduce halibut bycatch.	N/A	Laboratory experiments were completed on the comparative behavior of flatfish responses to sweeps. Manuscript in preparation.	Submit first manuscript on comparative behavior of flatfish responses to sweeps. Continue to develop and conduct field experiments with acoustic camera examining the effects of illumination on flatfish responses to trawl gear.	Complete data analysis for 2006 experiments. New experiments depending upon funding.	Reduced halibut bycatch.	Determine efficacy of flatfish behavior as a means of reducing halibut (and other species) bycatch, and offer recommendations on gear modifications that may reduce bycatch.	(a) Complete day/night experiments off Oregon. (b) Complete
5	Improved seabird bycatch reporting	Implemented changes to data recording to enable better estimation procedures.	Analysis of seabird bycatch complete through 2004.	Finalize improvements to statistical analysis of seabird bycatch.	Using improved analysis methods, analyze seabird bycatch in Alaskan waters by time/area cells and fishery sectors.	Improved accuracy and precision in estimates of seabird interactions and bycatch.	Analysis techniques reviewed and approved by peers; bycatch numbers produced.	(a) Tech memo on techniques. 8/1/2006. (b) Peer-reviewed paper on bycatch. 8/1/2007.
6	Seabird use of fishery discards and offal.	N/A	NRC postdoc established to work on issue, mapping of discards and stable isotope sampling started.	Mapping of availability of discards/offal; continue exploration for fishery signal in stable isotope data; implement special data collection projects.	Complete project and define linkage between seabird bycatch and offal/discard production.	Define linkage between seabird bycatch and offal/discard production.	Completion of peer-reviewed papers.	(a) Mapping of discard/offal. 7/1/2006. (b) Description of seabird use of fishery organic wastes and balance of positive/negative effects on population. 11/1/2006.
Encourage the Development and Use of Gear Technologies that Provide Efficient Methods for Reducing Bycatch								
1	A continuing cooperative project to reduce salmon bycatch during pollock trawling.	Ongoing development and technology transfer to industry.	Current best designs tested under commercial conditions and prototype design improvements tested in EFPs.	Presentations on 05 field work. Field testing of design improvements depending on funding.	Project report and publications, transition excluders to fishery.	Reduced incidental catch of salmon in directed pollock fisheries.	Documentation of reduced bycatch rates with excluders, excluder use in fisheries.	(a) analysis completed and industry seminar to report of 2005 fieldwork. 11/1/2005 (b) 14-20 days field evaluations and observations. 9/1/2006
2	A project to study the behavioral response of rock sole to disturbance by bottom trawl gear in order to determine how natural behaviors may be utilized to assist in bycatch reduction efforts in the rock sole fishery.	Clifford Ryer is currently completing ongoing experiments.	Evaluate potential continued lab and field experiments and prepare results from completed research for publication.	Continued work dependent upon funding.	Continued work dependent upon funding.	Reduced incidental catch in directed rock sole fisheries.		

3	Trawl vessel interactions with seabirds.	N/A	Special data collection implemented to characterize interactions and mitigation methods were developed and tested through a collaborative program. Initial work started on mapping 3rd wire effort and technology assessment.	Continue work to characterize problem by trawl fishery sector: complete technology assessment; continue collaborative efforts to develop mitigation measures.	Report on characterization; continue collaboration on mitigation measures; identify fishery sectors where efforts should be focused.	Characterize, minimize, mitigate trawl vessel interactions with seabirds, particularly the short-tailed albatross; this work will address non-discretionary measures required of NMFS in a USFWS BiOp (Sept 2003).	Finish purchase orders and produce reports.	(a) purchase orders completed. 6/1/2006. (b) report on technology assessment completed. 3/1/2006. (c) collaborators report on 1st generation mitigation measures. 4/1/2006. (d) identify sectors which may need to use mitigation measures. 8/1/2007.
4	Improve spatio-temporal characterization of seabird bycatch estimates.	Seabird bycatch data are currently collected in appropriate scale by North Pacific Groundfish Observer Program.	Seabird bycatch information analyzed by month and area and will be represented as such in reports currently in preparation	Meet requirements to assess risk to short-tailed albatross and continue field work, if funds available.	Dependent upon funding.	Improved characterization of when and where seabirds are being incidentally taken can assist in efforts to reduce this incidental take.		
5	Modify bottom trawls to reduce effects on seafloor habitats.	N/A	New project for FY 06-07. Initial cooperative contacts and preliminary plans made.	Completion of initial field studies to evaluate catch rates effects. Develop and test technology to evaluate changes in effects on seafloor habitat. 10 days field work (depending on funding).	Analyze 06 results and present to potential users. Further design improvements and testing. (Depends on Funding)	Reduced effects to structure forming sessile animals.	Documentation of reduced effects to structure forming sessile animals with minimal reduction in target catch rates.	(a) Complete initial 14 day evaluation of catch effects and sled prototype. 10/1/2005 (b) Present initial findings to NPFMC. 12/1/2005 (c) 14-25 days field evaluations and observations. 7/1/2006
6	Halibut excluder device development.	Initial funding and planning accomplished.	Initial observations completed, analysis and redesign of excluders started	Initial results analyzed and reported to potential users. Field work will continue. Emphasis will shift to cod fishery. (Depends on funding)	Analyze 2006 results and present to potential users. Further design improvements and testing. (Depends on Funding)	Reduced incidental halibut catch in directed groundfish fisheries.	Documentation of reduced bycatch rates with excluders, excluder use in fisheries.	(a) Analysis and report on 05 fieldwork. 2/1/2006 (b) 6-10 days field evaluations and observations. 8/1/2006
Develop and Implement More Effective and Efficient Management Measures to Reduce Bycatch								
1	Enforcement interval change for pollock Maximum Retainable Amounts (MRA).	Final rule published June 14, 2004 (69 FR 32901)	Ongoing	Ongoing	Ongoing	Decrease regulatory discards and increase retention for all non-AFA vessels in the BSAI.	Report to Council on increased pollock retention.	Annually
2	Minimum Groundfish Retention Standard.	Council final action taken at June, 2003 meeting. Proposed rule pending.	Proposed rule published June 16, 2005 (70 FR 35054).	If approved by the Secretary, publish final rule	Implementation January 20, 2007	Create a standard for retention of groundfish for the BSAI groundfish fishery, reduce groundfish discards, while continuing to allow for a multi-species trawl fishery to continue to be a viable fishery.	Publish of final rule and implementation of program.	Implementation January 20, 2007

3	Harvesting Cooperatives for the BSAI head and gut catcher processors and quota allocations to all sectors: Amendment 80.	Refining alternatives and components of analysis.	Refining alternatives and components. Initial review of analysis October, 2005	Final action scheduled February, 2006. Publish proposed rule.	Publish final rule.	Facilitate rationalization of some sectors in the BSAI. Rationalization would eliminate the race for fish and allow cooperative behavior to decrease discards.	Proposed and final rule published.	Implementation January 20, 2008
4	Establish a new program for observer procurement and deployment in the North Pacific.	Developing Alternatives for Council consideration.	Developed a draft analysis to support Council action.	Completion of the Council analysis. Further work will be dependent on Council action.	Dependent on Council Action.	Improved efficiency in allocation of observer resources. Flexibility in assigning observers based on priorities, logistics, and costs.	1.Completion of analysis and Council initial review - Feb 2006, and 2. Council final action - June 2006.	1.Completion of analysis and Council initial review - Feb 2006, and 2. Council final action - June 2006.
5	Non-target species management.	Non-target working group designing a global mechanism of handling non-target species by using rockfish as a study case.	Development of problem statement and Alternatives.	Continued development of problem statement and Alternatives.	Anticipate implementation.	Optimization of sustainable yield of non-target species, where possible, while also protecting them from potential overfishing.	Publish proposed and final rule.	SSC review February 2006, preliminary review April.
6	Required full retention of dimersal shelf rockfish (DSR) incidentally harvested in the Southeast Outside area in hook and line and jig groundfish and halibut IFQ fisheries while limiting sale of these fish.	Final rule published November 11, 2004 (69 FR 68095).	Implementation	Ongoing	Ongoing	Decrease waste, more accurately estimate DSR fishing mortality, improve DSR stock assessments, and evaluate whether current MRAs are the appropriate levels for DSR in the SEO.	Annual management report to the Council reflects catch and bycatch of DSR species.	Annually
7	GOA groundfish fishery rationalization.	Development of options and components for analysis.	Ongoing	Ongoing; Council action as needed.	Ongoing; Council action as needed.	Provide opportunities to address conservation goals by providing opportunities to utilize fishing methods that reduce bycatch and gear conflicts.	Continue to support Council action as needed.	This action is scheduled for review by the Council in December, February, and April.
8	Essential Fish Habitat (EFH)	Comment period on GOA and AI DEIS closed April, 2004.	Council final action for GOA and AI February and April. ROD for DEIS issued August 8, 2005. Development of problem statement and alternatives for BS in December.	Proposed and Final Rule for GOA and AI published. Implementation summer 2006. Continued development of BS action.	Anticipate implementation BS action.	Minimizing the adverse effects of Council managed fisheries by describing EFH for these fisheries and identifying HAPCs.	Proposed and Final Rule for GOA and AI published. Continued development of BS action according to Council schedule.	Implementation of GOA and AI action summer 2006.
9	BSAI Salmon bycatch (Am 84a and 84b)	N/A	Final action on Am 84a October, 2005	Publish proposed and final rule. Anticipate implementation of Am 84a by August 1, 2006. Continued development of Am 84b.	Continued development of Am 84b.	Am 84a: reduce salmon bycatch by repealing salmon savings areas and allowing pollock vessels to utilize their voluntary rolling hotspot system to avoid high bycatch areas. Am 84b: evaluate alternative salmon savings areas based on historic information and/or incorporate individual bycatch quotas to reduce salmon bycatch.	Publish Am 84a final rule and implementation of program.	Implementation of Am 84a by August 1, 2006.
10	CGOA Rockfish Pilot Project	N/A	Final action by Council. Development of proposed rule.	Publish proposed and final rule.	Anticipate implementation in 2007.	Provide opportunities to address conservation goals by providing opportunities to utilize fishing methods that reduce bycatch and gear conflicts.	Publish proposed and final rule.	Proposed rule January, 2006. Final rule June, 2006. Implementation January, 2007.

11	Seabird bycatch reduction in longline fishery.	Final rule to revise and implement new seabird avoidance requirements of longline vessels published January 13, 2004 (69 FR 1930).	Continue efforts to improve regulations by addressing issue of small boat requirements for seabird avoidance measures. Ongoing implementation of final rule requiring seabird avoidance measures for longline vessels. EFP research conducted in summer 2005 to assess efficacy of integrated weight longline at reducing seabird bycatch. Results will be forthcoming.	Continue efforts on small boat requirements; collaborations with Washington Sea Grant Program, USFWS, AFSC.	Continue efforts on improvements to seabird avoidance measures. Improvements may include revised small boat requirements, line weighting requirements.	Reduce levels of incidental take of seabirds.	Monitor levels of incidental take of seabirds. Monitor status of proposed and final rulemakings.	Reduced levels of incidental take of seabirds. Published proposed and final rulemakings.
Improve the Outreach Activities that Assist in Meeting the First Four Objectives and Provide Information that Can Be Used to Address Bycatch Problems in Other Fisheries								
1	Improve bycatch information available to industry.	Working with private fisheries management firms to provide accurate, precise, and timely bycatch information for transmittal to fleet.	Ongoing	Ongoing	Ongoing	Industry will be better informed about gear technology, the effects of bycatch, and inseason bycatch data and can make better decisions to avoid bycatch.	Progress will be measured by ability of individual sectors to avoid bycatch and manage allocations and TACs.	Remaining below TACs, allocations, and PSC levels.
2	Improve bycatch information available to fishery managers, and other stakeholders, including the public at large.	Annually present bycatch information to the Council on the effects of regulatory discards.	Ongoing	Ongoing	Ongoing	Fisheries managers and the public will be able to make better decisions regarding management actions and policies.	Presentation of bycatch information to the Council on the effects of regulatory discards.	Annually
3	Obtain better bycatch information.	Current efforts to improve salmon bycatch estimation.	Ongoing	Ongoing	Ongoing	Programs under this activity will be used to support outreach efforts under other activities under this heading.	Presentation of salmon bycatch information to the Council.	Annually
4	Participation in international efforts to address bycatch problems.	The NMFS National Seabird Program is coordinated out of the AKR and engages in numerous activities to promote international action to effectively address seabird/fishery issues.	Ongoing	Ongoing	Ongoing	Support information needs for decision makers outside the U.S. to decrease bycatch and obtain information to provide efficiencies in domestic efforts to reduce bycatch.	Maintain record of NMFS's involvement with international seabird activities and events.	Any products (reports, papers) from joint US/international seabird bycatch reduction efforts.